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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,527	04/02/2001	Kirk Johnson	2762.2006-002	1065
21005	7590	05/16/2005	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			AVELLINO, JOSEPH E	
			ART UNIT	PAPER NUMBER
			2143	

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,527

Applicant(s)

JOHNSON, KIRK

Examiner

Joseph E. Avellino

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52, 55, 58 and 61-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52, 55, 58 and 61-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-52, 55, 58, and 61-72 are pending; claims 1, 19, 35, 40, 45, 47, 52, 55, and 58 are independent.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 2, 2005 has been entered.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 55 is rejected under 35 U.S.C. 101 because it is not tangibly embodied.

Computer program product is not tangibly embodied since it is not recorded on a computer readable medium. Correction is required. See MPEP 2106.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 11-13, 16, 18, 19, 28-30, 33, 35, 38, 40, 43, 45, 47, 50, 52, 55, 58, 62, 64, 66, 68, 70, and 72 are rejected under 35 U.S.C. 102(e) as being anticipated by Primak et al. (Pub. No. 2001/0039585) (hereinafter Primak).

5. Referring to claim 1, Primak discloses a system for optimizing server selection for clients from among a plurality of servers in a packet communication network (Figure 1; abstract), the system comprising:

- a plurality of servers for alternatively responding to client requests (Figure 1, reference characters 30a-e);

- a central server (DNS server) that maintains server selection weights (i.e. connection capacity and connection quality), and, based on the weights, provides in response to a client request (i.e. *on receipt of a client query*), a candidate server list (i.e. subset of DNS agents 32 based on the location of client 60 or server cluster zone) for responding to a client request to a network node (i.e. the DNS server) adapted to interrogate (i.e. ping as stated by Applicant on page 8 of the disclosure) the individual servers represented in the candidate server list, the central server receiving feedback (i.e. measurement statistics) indicating service by individual servers in response to client requests and modifying the server selection weights based on the feedback (Figure 1; abstract; p. 2, ¶ 25; p. 3, ¶ 31).

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6. Referring to claim 11, Primak discloses each candidate server in the candidate server list is unique from each other candidate server in the list (i.e. there are no duplicate servers returned to the client, merely only ones which are above threshold) (Figure 1; p. 2, ¶ 23; p. 3, ¶ 31).

7. Referring to claim 12, Primak discloses the feedback occurs at a requested event (i.e. when requested to by the DNS server) (p. 3, ¶ 27-29).

8. Referring to claim 13, Primak discloses the weights are based on a bias factors to reduce convergence time, the bias factors including geographical location (Primak discloses returning the server with the shortest RTT, or round trip time, the server geographically closest to the client will have the higher RTT, and thereby be biased towards that particular server in the weighting of the servers) (p. 2, ¶ 29).

9. Referring to claim 16, Primak discloses the central server includes multiple central servers organized as a distributed system (p. 2, ¶ 25).

10. Referring to claim 18, Primak discloses the candidates represented in the candidate server list are pseudo-randomly selected based on the weights (they are based on feedback received from the servers, which factor upon the current loads of the servers, thereby providing a randomness to the selection factor, there is no actual

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scheme, such as round-robin, to select the next server, thereby it is considered a pseudo-random selection) (e.g. abstract).

11. Claims 19, 28-30, 33, 35, 38, 40, 43, 45, 47, 50, 62, 64, 66, 68, 70, and 72, are rejected for similar reasons as stated above.

Claim Rejections - 35 USC § 103

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-7, 20-24, 32, 36, 39, 41, 44, 46, 48, 51, 52, 55, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Primak.

13. Referring to claim 2, Primak discloses the invention substantively as described in claim 1. Furthermore, Primak discloses comprising a DNS server 10 which receives the client request from the client (p. 2, ¶ 25); and based on the client requests, forwards the client requests to the central server (since the central server is part of the DNS server, it inherently forwards this request to the server when a resolution is to be made based on the server cluster. Primak does not disclose the DNS server is separate from the central server. However it is well known that constructing a formerly integral structure in various elements only requires routine skill in the art (See *Nerwin v. Erlichman* 168 USPQ 177 (1969)). By this rationale it would have been obvious to one of ordinary skill

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in the art to separate the functionality of the DNS server and the central server into multiple segments to lessen the operational overhead towards the DNS server, thereby providing faster throughput and better overall customer performance.

14. Referring to claim 3, Primak discloses the invention substantively as described in claim 2. Primak further discloses interrogating candidate servers in the candidate server list (p. 2, ¶ 25).

15. Referring to claim 4, Primak discloses the invention substantively as described in claim 3. Primak further discloses selecting a candidate server based on the interrogation (p. 3, ¶ 31).

16. Referring to claim 5, Primak discloses the invention substantively as described in claim 4. Primak further discloses indicating to the selected candidate server that it has been selected to provide service to the requesting client (it is inherent that when the client sends its request to the selected candidate server via a redirection packet, the server will know that it has been selected to provide service to the requesting client, since the only way for the client to be serviced by the particular server in the cluster is to request the address from the DNS server) (p. 3, ¶ 31).

17. Referring to claim 6, Primak discloses the invention substantively as described in claim 3. Primak further discloses the DNS server returns to the requesting client the

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address of the first server to respond to the interrogation (Primak uses this term as the "shortest RTT" or Round Trip Time; since all interrogation requests are sent virtually simultaneously, it would be deduced that the server with the lowest RTT would be the first server to respond to the interrogation) (p. 3, ¶ 29).

18. Claim 7 is rejected for similar reasons as stated above.

19. Referring to claim 15, Primak discloses the invention substantively as described in claim 1. Primak does not disclose the central server includes vectors of server selection weights for subsets of clients. However, it is common knowledge that a DNS server caches certain aspects of a client's session with a server (i.e. maintains state information and would be able to redirect to an appropriate server if the client has an affinity towards that particular machine, either geographical or security). Taken in context with the invention disclosed in Primak, it would have been obvious to one of ordinary skill in the art to include caching weights of servers for particular clients for faster redirection and less transactional overhead.

20. Claims 20-24, 32, 36, 39, 41, 44, 46, 48, and 51, are rejected for similar reasons as stated above.

Claims 17, and 34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Primak in view of Meek et al. (USPN 6,539,426) (hereinafter Meek).

21. Referring to claim 17, Primak discloses the invention substantively as described in claim 1. Primak does not disclose the client interrogates the candidate servers in the list to measure network performance. Meek discloses another load balancing method wherein client interrogates the candidate servers in the list to measure network performance (col. 10, lines 6-27). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Meek with Primak to adequately provide business applications programs that are distributed amongst the servers in the network providing redundancy and increased application usage as supported by Meek (col. 1, lines 45-50).

22. Claim 34 is rejected for similar reasons as stated above.

23. Referring to claim 52, 55, and 58, Primak discloses the invention substantively as described in claim 1. Primak does not specifically disclose sending a count as to the number of times the server is selected to provide service, however Primak does disclose transmitting new capacity information to the DNS server by the DNS agents 32 executing on the servers (p. 2, ¶ 23). It is well known that the number of times a server is used for service is directly proportional to the available capacity left on the server since the bandwidth of the server is finite, and the more utilized by serviced clients, the less available for more requests. Therefore it would be obvious to one of ordinary skill in the art that the available capacity could include the number of times the server is

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selected to provide service in order to provide another method of tracking the bandwidth of the server and also allowing network administrators another value in which to mediate server selection (i.e. clients serviced by server $< x$).

Claims 8-10, 25-27, 37, 42, and 49, are rejected under 35 U.S.C. 103(a) as being unpatentable over Primak in view of Guenthner et al. (USPN 6,134,588) (hereinafter Guenthner).

24. Referring to claim 8, Primak discloses the invention substantively as described in claim 1. Primak does not disclose the candidate server list includes extra, randomly selected, candidate servers beyond the candidate servers selected based on the weights. In analogous art, Guenthner discloses another server load balancing method wherein the candidate server list includes extra, randomly selected, candidate servers beyond the candidate servers selected based on the weights (e.g. abstract; Figure 8; col. 8, lines 25-50). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Guenthner with Primak to provide a client-side solution to ensure availability of Web services to a Web browser as supported by Guenthner (col. 1, lines 65-67).

25. Referring to claims 9 and 10, Primak discloses the invention substantively as described in claim 1. Primak does not disclose the randomly selected candidate servers are a fixed number/percentage (a percentage is a number) beyond the number.

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of servers selected based on the weights. Guenthner discloses including randomly selected servers based on the weighting (e.g. abstract; Figure 8; col. 8, lines 25-50). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Guenthner with Primak to provide a client-side solution to ensure availability of Web services to a Web browser as supported by Guenthner (col. 1, lines 65-67).

26. Claims 25-27, 37, 42, and 49, are rejected for similar reasons as stated above.

Claims 61, 63, 65, 67, 69, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Primak in view of Lin (USPN 6,298,451).

27. Referring to claim 61, Primak discloses the invention substantively as described in claim 1. Primak does not specifically disclose the client is the node adapted to interrogate individual servers. In analogous art, Lin discloses another system for optimizing server selection which discloses a client interrogating servers from a candidate server list (col. 5, lines 7-19; col. 6, lines 15-39). It would have been obvious to one of ordinary skill in the art to combine the teaching of Lin with Primak in order to reduce the load off of the DNS server of Primak in order to allow the client, which is less loaded than a DNS server, the task of determining if a candidate server is available, thereby reducing overhead transactions on the DNS server, thereby allowing more efficient processing of incoming DNS requests.

28. Claims 63, 65, 67, 69, and 71 are rejected for similar reasons as stated above.

Response to Arguments

29. Applicant's arguments filed December 20, 2004 have been fully considered but they are not persuasive.

30. Applicant argues, in substance, that (1) the clients of Primak do not interrogate the candidate servers, rather communicate, (2) Primak does not disclose providing a candidate server list of at least two candidate servers to a client or DNS server.

31. As to point (1) Applicant is advised that limitations from the specification are not read into the claims (i.e. the example of "interrogating" given in the specification is not, per se, a definition of interrogating). If Applicant wishes to give the term "interrogate" the meaning of "querying or pinging to determine the applicability of the server in the candidate list", Applicant is invited to amend the claims to include the limitations recited on page 8. By this rationale the rejection is maintained.

32. As to point (2) The Office respectfully disagrees. The amended claim recites the central server *provides* the candidate server list to the network node. The DNS server can act both as a network node *as well as* the central server since it both receives a

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candidate server list as well as maintains a listing of server weights. By this rationale, the rejection is maintained.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

34. Colby et al. (USPN 6,449,647) discloses content-aware switching of network packets.

35. Hu (USPN 6,173,322) discloses network request distribution based on static rules and dynamic performance data.

36. Aman et al. (USPN 6,249,800) discloses assigning session requests in a multi-server sysplex environment.


37. Primak et al. (USPN 6,389,448) discloses load balancing.

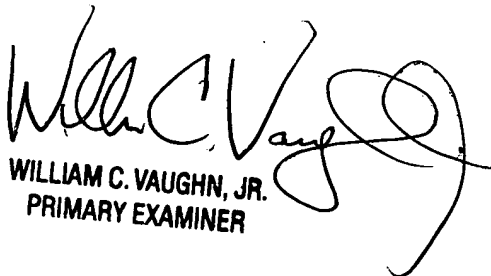
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JEA
May 10, 2005


WILLIAM C. VAUGHN, JR.
PRIMARY EXAMINER